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uniserial on each jaw. Branchiostegal rays only three on each side. Dorsal fin nearly equally divided; its spinous portion convex and with seventeen spines, the last of which are lower than the second part. Anal fin oblong, with three moderate spines and about fifteen gradually decreasing rays. Pectoral fins with one of its simple rays produced beyond the rest.

The genus *Nematodactylus* is distinguished from all the other representatives of the family by the presence of only three branchiostegal rays. Notwithstanding this anomalous character, its resemblance to the Latridinæ, and especially to *Chirodactylus* and the allied genera, is such that scarcely a doubt can be entertained as to the affinity of the genus to the rest of the subfamily. Another characteristic feature of the genus is the nudity of the cheeks.

Only one species is known.

NEMATODACTYLUS CONCINNUS (Rich.)

Nemadactylus concinnus *Richardson*, Transactions of the Zoological Society, vol. iii. p. 116, pl. 4, fig. 2.

Habitat. Port Arthur, Van Diemen's Land.

Description of a new species of CIRRHITUS.

CIRRHITUS ALTERNATUS Gill.

The form is similar to that of the typical species of the genus. The region of greatest height is above the ventral fins, and there equals three-tenths (3-10) of the total length; thence the back is slowly decurved towards the caudal peduncle; the height behind the dorsal equals an eighth and that at the lowest part of the peduncle a tenth of the length. The thickness at the pectoral region is between a fifth and sixth of the length.

The head is very obliquely decurved, and is longer than high; it nearly equals the height (29-100) to the end of the bony projection of the operculum, and the membranous portion extends two fractions beyond (31-100.) The distance from the snout to the nape equals 23-100 of the total length, and is as great as the height at the latter region; the height at the pupil equals 18-100 of the length. The interorbital region is channelled or concave. The distance between the orbital ridges is less than the diameter of the eye (4½-100.) The eye is moderate, the diameter being nearly a fourth of the head's length (7-100 of the total), and is greater than the height of the preorbital, which is about a fifth of the head's length (6-100.) The snout exceeds a third of the same (11-100.) The preoperculum has a convex margin, which is delicately serrated above the interoperculum. The preorbital is entirely concealed in the integuments and entire, and equals in height the diameter of the eye. The cheeks are covered with very small scales; the preopercular border naked; the operculum and suboperculum have three rows of scales, larger than those of the body; the interoperculum three in one row; the operculum two in the lower row and two smaller ones in an upper. The postnasal fringe has two larger filaments and several smaller ones.

The cleft of the mouth has a semi-elliptical contour, and is moderate, the supramaxillary bones ending under the posterior border of the pupil. The canine teeth are well developed, two being in the front of the upper towards the sides, and six to eight in the lower in front, while on each side of the lower are also two larger ones. The band of villiform teeth is quite broad in each jaw. The front of the vomer only has a narrow lambdoidal band, and the palatines are unarmed.

The dorsal fin commences over the end of the bony operculum and the axilla of the pectoral, or nearly with the third tenth (32-100) of the total length. The spinous portion covers three-tenths (31-100) of the length, and is convex; the first spine equals a twentieth (5-100) of the total length, and is less than half as long as the third to the sixth inclusive, they equalling a ninth (11-100) of the same; the ninth spine equals 7-100 of the same. The membrane is not acutely notched, and is penicilligerous behind each spine. The soft portion, inclusive of its spine, exceeds a fifth (21-100) of the length, is higher in front than the spinous and declines little in height.

The anal fin commences nearly under the first soft dorsal ray and at the posterior half of the length (53-100); the entire base equals 13-100 of the total length, and the soft portion, inclusive of its spine, an eleventh (9-100); the latter is much higher than long, and vertical truncated behind when expanded; the second soft or first branched ray is nearly twice as long as the base of the soft part (17-100). The membrane behind the first and second spines is acutely notched; the length of the first spine nearly equals a twelfth (8-100), that of the second an eighth (12-100) of the total length, and is greater than that of the third.

The caudal fin truncated behind and forms nearly a fifth (19-100) of the length.

The pectoral fins are well developed, but none of the rays are much elongated, the second and third simple rays from the branched being about equal, not a quarter (23-100) of the length, and not much larger than the fourth, which exceeds a fifth (21-100) of the same. There are seven simple rays, the membrane below each of which, except the uppermost, is very deeply and acutely notched.

The ventral fins are inserted nearly at the vertical, between the fourth and fifth dorsal spines, and extend backwards to the anus, the length nearly equalling a sixth of the total (17-100); the spine equals a tenth (10½) of the same; the first ray is longest and about a quarter longer than the inner.

The branched rays of the dorsal are divided from the middle, and the posterior branch again divided; those of the anal are dichotomous, both branches being divided, as are also those of the caudal. Those of the pectorals are unequally branched, like those of the dorsal, the lower branch only being divided. The central rays of the ventrals are thrice divided; the others are more or less unequally branched.

The scales are large, there being only forty along the lateral line; above are four rows, and below ten. The obliquity is such that a row from the front of the dorsal fall behind the anus.

D. IX. I. $10\frac{1}{1}$. A. III. $5\frac{1}{1}$. C. 6. 1. 7. 6. 1. 5. P. 1. 6 | 1. 6. V. I. 5. Scales $40\frac{4}{10}$

The color is grayish or light purplish, apparent on the back in five spots, the first of which is below the third to fifth spine; the second below the seventh and eighth; the third below the second to fifth soft rays; the fourth unpaired and behind the dorsal, and the fifth at the base of the caudal; below the lateral line are as many more under the superior row, and these alternate below with as many bands as broad as the intervals. The intervals between the spots on the back, especially the last, are band-like. The spinous part of the dorsal is purple, with two lighter longitudinal bands; the soft part is also purplish at the base. The rays of the caudal and anal are sometimes spotted. The head is purple, and the chin is marked with three purple spots, forming a triangle. The bands are much darker on the back.

Body—	Total length from snout to caudal, 5½	100
	Greatest height	30
	Height at caudal peduncle behind	12½
	" " in middle	10
	Thickness of body at pectoral region	18
Head—	Length from snout to opercular angle	29
	" " opercular membrane	31
	" " nape	23
	Width at operculum	18
	" eyes	14
	" between orbits	4½

Height of preorbital	6
Eye—Diameter	7
Distance from snout	11
Dorsal—Distance from snout	32
Length to base of last spine	31
“ of soft portion	21
Anal—Distance from snout	53
Length	13
Length of 1st spine	8
Length of 2d spine	12
Caudal—Length of middle ray	19
“ outermost rays	19
Pectoral—Length of 2d and 3d simple rays	23
“ 4th simple ray	21
Ventral—Length of 1st ray	17
“ spine	10½

A single specimen of this species, in very fine condition, is contained in the Smithsonian museum, and was obtained at Honolulu (Sandwich Islands), by the Rev. W. H. Pease. It differs from the other species chiefly in color and the size of the scales, resembling in the last respect the *Cirrhitus maculatus.* It is nearly related to that species, but differs not only in color, but in the smooth palatine bones, and would consequently be placed in a different genus by Bleeker and Günther.

On the limits and arrangement of the Family of SCOMBROIDS.

BY THEODORE GILL.

The family of Scombroidæ, as established by Cuvier, was a very heterogenous group, containing many dissimilar forms which certainly cannot, in the present state of our knowledge, be characterized or distinguished by any decisive diagnosis, nor is one of the characters given by Cuvier himself either peculiar to his family or applicable to all its constituents. Various attempts have been made to distribute the species referred to the Cuvieran family among natural groups. The most recent of these, and the most valuable on account of the knowledge of the authors, are those of Drs. Bleeker and Günther. Neither of those naturalists appear to have been successful in giving an entirely natural arrangement of the family. Dr. Bleeker has not characterized his groups. Dr. Günther has distinguished his by the number of vertebræ and the comparative extent of the dorsal fins. The following arrangement is a sketch of one which it is proposed to shortly publish in more detail. The family thus established comprises parts of Dr. Günther's Trichiuridæ and Scomberidæ, as the characters given to the former are equally applicable to some of the genera of the latter.

Family SCOMBROIDÆ (Cuv.)

A. Body fusiform and moderately elongated. First dorsal with less than 25 spines.

B. Spinous dorsal abbreviated and widely separated from the soft. Pectorals at the horizon of the eyes.....SCOMBRINÆ.

a. Teeth on the palatine arcade..................Scomber.

b. No teeth on the palate............................Auxis.

BB. Spinous dorsal contiguous to the soft, variable. Pectorals equidistant from the back and breast, or nearer the latter...ORYCNINÆ.

C. Tail with cutaneous keel on each side.